College of Arts and Sciences
Department of Physics
Course Syllabus

3 Credit Hours
PHYS–153: General Physics I

I. Course Description

General Physics I is a calculus - based physics course for science majors. That is, this course is designed for physical science, mathematics and computer science majors. Physics deals with the behavior and composition of matter and its interactions at the most fundamental level. Course content for General Physics I includes topics on mechanics, waves and thermodynamics. Class meetings include three-one hour period, and a one hour problem session per week (4 contact hours). These do not require separate registrations. Pre-requisites: University admittance. Co-requisites: PHYS 153L or completion of PHYS 153L.

II. Rationale

This course introduces the student to the principles of mechanics, waves, and thermodynamics. It lays the foundation for the student's education in subsequent advanced courses.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.

- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.

- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the importance of the principles of mechanics and heat to other academic and scientific disciplines.

- Understand the importance of the principles of mechanics and heat to the community.

- Demonstrate the principles of mechanics and heat in a laboratory setting.
- Analyze laboratory data and present findings in a written report.
- Relate the principles of mechanics and heat to the community.

V. Course Content

- Mathematics Review
- Vectors
- Motion in One Dimension
- Motion in Two Dimensions
- The Laws of Motion
- Applications of Newton's Laws
- Forces and Fields in Nature
- Work and Energy
- Potential Energy and Conservation of Energy
- Momentum and Collisions
- Rotational Motion
- Orbital Motion
- Temperature and the Kinetic Theory of Gases
- Heat and the First Law of Thermodynamics

VI. Learning Activities

Lecture/Note-taking
Solving Textbook Problems in Physics
Performing Laboratory Experiments
Writing Lab Reports

VII. Special Course Requirements

This course is composed of three one-hour lectures, and a one hour problem session per week. Accompanying this course is a two-hour per week laboratory, which requires separate registration.

CLASS ATTENDANCE: University polices and guidelines regarding class attendance will be followed as highlighted in the University Bulletin. Grambling State University uses the Class Attendance Policy of the University of Louisiana System. Minimum Class Attendance Regulations for the Colleges and Universities under the control of the Board are as follows:

1. Class attendance is regarded as an obligation as well as a privilege, and all students are expected to attend regularly and punctually all classes in which they are enrolled. Failure to do

so may jeopardize a student's scholastic standing and may lead to suspension from the college or university.
2. Each instructor shall keep a permanent attendance record for each class. These records are subject to inspections by appropriate college or university officials.
3. A student shall submit excuses for all class absences to the appropriate instructor within three class days after the student returns to the respective class. The instructor may excuse the student for being absent and will also accept an official university excuse. The Registrar's Office does not issue excuses for absences.

Any University policy, regulation, or guidelines not explicitly included in this syllabus applies and must be consider as part of this syllabus, it is the student responsibility to know University policies, regulations, and guidelines. Any particular situation not properly considered by the University will be treated on a case by case basis.

ACADEMIC MISCONDUCT: Academic behavior is ruled by University policies and guidelines are included in the University bulletin as well as the Code of Students rights, Responsibilities, and behavior.

- Students are expected to maintain a professional classroom environment. Students are to refrain from: verbal or physical violence, threats, improper language, disrespect to classmates and instructors. Participants of such activities will be asked to leave the class.
- **CHEATING:** There is a zero-tolerance policy about cheating, whoever is found cheating will get 0 points in that exam and the incident will be reported to the corresponding University official so they can apply University policies on cheating.
- **PLAGIARISM:** Plagiarism is defined by Merriam-Webster's dictionary as "to steal and pass off (the ideas or words of another) as one's own" *or* "to commit literary theft **:** present as new and original an idea or product derived from an existing source". There is a zero-tolerance policy about plagiarism. Plagiarized documents will receive 0 points and the incident will be reported to the corresponding University official so they can apply University policies on plagiarism.
- **VERBATIM COPY:** Extensively amounts of verbatim in assignments (even with use of references and quotations) will be penalized with point deductions.

VIII. Evaluation Procedures

Methods

Students will be evaluated based on their performance in examinations (including comprehensive final examination), quizzes, homework, and class participation and activities.

Grading Scale:

HOMEWORK: During each class period, homework will be assigned and it is expected that each student will complete it as much as possible. If there are any questions, you can come and see me during my conference hours or make an appointment. First several minutes of lecture period will be utilized to answer questions regarding homework assignment.

QUIZZES: There will be no make up for quizzes. Quizzes can be given at any time during the class period and last approximately 5 minutes. Arriving at class promptly is important.

TESTING: There will be 3 major tests and a comprehensive mid-semester and final examination. All students are required to take every exam when scheduled. **No makeup will be given unless there is an emergency and/or arranged in advance. No more than one makeup per student will be allowed during the semester.**

CLASS OBSERVATION AND PARTICIPATION OF STUDENT

A small percentage (5 %) of your grade will be bases on my observation of you as a student. That is; attendance, attitude, willingness to participate in class, and what I characterize as satisfactory progress. Attendance will be taken at the beginning of each class. The GSU attendance policy will be followed (refer to the GSU Catalog).

GRADING: Each Test will be 100 Points
The Mid-semester (comprehensive) and Final examinations (comprehensive) will be 200 points each. , Quizzes, homework and individual/group activities will constitute 100 points each.

At the end of the semester, the final grade will be determined based on the ratio of point awarded to that of total possible points, using the following scale:

90 -100 A, 80 - 89 B, 70 - 79 C, 60 - 69 D, 0 - 59 F

IX. References

Textbook:

Raymond A. Serway and Robert J. Beichner, *Physics for Scientists and Engineers, 5th Ed.*, Saunders College Publishing, Fort Worth, 2000.

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.

***All cell phones are to remain off the entire period of class. If you need special assistance see me.**